

CLAIMS

1. A microcellular polyurethane foam obtainable by reacting a polyisocyanate, a polyester formed from a dimer fatty acid and/or dimer fatty diol, and a chain extender.
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2. A process for preparing a microcellular polyurethane foam which comprises (i) reacting a polyisocyanate with a polyester formed from a dimer fatty acid and/or dimer fatty diol, to form an isocyanate-terminated prepolymer, and (ii) reacting the prepolymer with a chain extender.
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3. A foam or process according to claim 1 or 2 wherein the polyester is additionally formed from a non-dimer dicarboxylic acid, and preferably the ratio of dimer fatty acids to non-dimer acids is in the range from 30 to 70:30 to 70% by weight of the total dicarboxylic acids.
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4. A foam or process according to claim 3 wherein the non-dimer dicarboxylic acid comprises adipic acid.
5. A foam or process according to any one of the preceding claims wherein the
20 chain extender is a diol having an aliphatic linear carbon chain comprising in the range from 1 to 10, more preferably 3 to 5 carbon atoms.
6. A foam or process according to any one of the preceding claims wherein the foam retains at least 60%, preferably at least 80%, of its initial tensile strength and/or
25 initial elongation at break properties, after being subjected to hydrolysis for 2 weeks.
7. A foam or process according to any one of the preceding claims wherein the foam retains at least 20%, preferably at least 30%, of its initial tensile strength and/or retains at least 30%, preferably at least 50% of its initial elongation at break properties,
30 after being subjected to hydrolysis for 4 weeks.
8. A foam or process according to any one of the preceding claims wherein the foam has a density in the range from 0.25 to 0.7 gcm⁻³, and/or a hardness in the range from 20 to 60 Shore A, and/or a tensile strength in the range from 35 to 80 kgcm⁻²,

and/or an elongation at break of greater than 250%, and/or a tear strength in the range from 2 to 8 kNm⁻¹, and/or an impact resilience in the range from 10 to 35%.

9. An isocyanate-terminated prepolymer which is the reaction product of a
5 polyisocyanate and a polyester which is the reaction product of dimer fatty acid, adipic acid and diethylene glycol.

10. A shoe sole comprising a microcellular polyurethane foam obtainable by
reacting a polyisocyanate, a polyester formed from a dimer fatty acid and/or dimer fatty
10 diol, and a chain extender.

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